UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/849,408	05/07/2001	Dan Goren	P-3786-US	9449

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EXAMINER
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ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>May 7th, 2001</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-40</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-40</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>May 7th, 2001</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
         application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date <u>2</u>.
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-to-40 are pending in the application.

Drawings

2. Figure 1 should be designated by a legend such as "Prior Art" because

only that which is known is illustrated.

Corrective Action is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and
> process of making and using it, in such full, clear, concise, and exact terms as to enable any
> person skilled in the art to which it pertains, or with which it is most nearly connected, to make
> and use the same and shall set forth the best mode contemplated by the inventor of carrying
> out his invention.

4. Claims 10-11 & 30-31 rejected under 35 U.S.C. 112, first paragraph, as

failing to comply with the written description requirement. The claim(s)

contains subject matter, which was not described in the specification in

such a way as to reasonably convey to one skilled in the relevant art that

the inventor(s), at the time the application was filed, had possession of the

claimed invention. The Claims refer to a "stability factor" by this is not

defined in the specification clearly; the specification refers to the stability

factor as "any step factor for step adjustment" (Specification, Page 4, lines

13-16), but this is not descriptive enough to reasonably convey to one

skilled in the relevant art as to how this factor is used in the selection of

the data rates.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

6. Claims 12-20 & 32-40 are rejected under 35 U.S.C. 112, second

paragraph, as being indefinite for failing to particularly point out and

distinctly claim the subject matter which applicant regards as the

invention.

Regarding to Claims 12-20 & 32-40, Claim 12 discloses establishing a

vector of initial data rates (Step "a" of Claim 12), and setting a lower /

upper rate for each of the modem pairs (Steps "b" & "c" of Claim 12),

however after performing step "c" of the claim the current data rate of the

modem is the upper data rate and not the initial data rate. Furthermore,

after completing the steps "g" & "h", all the current, lower and upper data

rate have the same data rate therefore, it would not be possible to set the

modems to a data rate between the lower rate and upper rate.

Claim 12 also recites the limitation "current data rate" in Step "g" of the

claim.

Claim 12 also recites the limitation "setting a maximum rate" in Step "h" of

the claim.

Claim 12 also recites the limitation "setting a higher rate" in Step "i" of the

claim.

There is insufficient antecedent basis for these limitations in the claim,

which defines an "upper rate", a "lower rate" and an "initial data rate".

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

8. Claims 1-4, 7-9, 21-24 & 27-29 are rejected under 35 U.S.C. 103(a) as

being unpatentable over the Applicant Admitted Prior Art (AAPA) in view

of Naper (5,491,565).

Regarding to Claims 1 & 21, the Applicant Admitted Prior Art (AAPA)

discloses a DSL modem elements arranged in modem pools to achieve high

data rates in a DSL system (Specification, Page 2, lines 5-8). The AAPA also

discloses different methods for setting different data rates for each modem in

the modem pool and using different mechanisms to set the data rates such as

setting all modems to a same pre-defined data rate or setting modem data

rates individually according to a predefined data rate array; in either case the

predefined data rate is typically set according to a preset value or based on

loop length (Specification, Page 2, lines 5-15). However, the AAPA does not

specifically disclose the method of parallel data rate setting between modem

pools comprising the steps of setting in parallel modem pairs to an initial data

rate; for each pair of modem pairs if the modem pairs are synchronized within

a synchronization time period, increasing the modem pairs data rate; if the

modem pairs are not synchronized within a synchronization time period,

decreasing the modem pairs data rate; setting each of the modem pairs to the

highest data rate at which modem pair achieved synchronization.

Naper discloses a method and apparatus for transmission of data between

a source modem and a destination wherein the source modem comprising a

variable transmission rate, and providing a negotiation between the source

and the destination modems so as to select the optimum communication data

rate (Column 3, lines 5-30 & Column 2, lines 54-60 & Column 6, lines 52-60).

Naper also discloses monitoring the channel quality between the modem and

based on the quality of the channel the data rate of the communication is

varied (Column 3, lines 5-15 & Column 7, lines 60-67 & Column 8, lines 1-5 &

Column 11, lines 8-13). Naper also discloses selecting a first data rate at the

source modem and the destination modem receives the data at the first data

rate and exchanges control signals, for data rate negotiation, between the

source and destination modems as to establish the communication data rate

(Column 3, lines 45-67 & Column 6, lines 52-60 & Column 8, lines 14-16).

Naper also discloses the destination modem transmits various messages

such as "retrained positive" and "retrained negative" for data rate negotiation

(Column 8, lines 9-14 & Column 8, lines 37-60). Naper also discloses the

data rate negotiation process to include setting/resetting a timer(s) in the

source modem so as to wait for a response from the destination modem and

depending on the expiration of the timer(s) negotiating the data rate of the

communication between the source and destination modems (Column 10,

lines 1-60 & Column 12, lines 5-20 & Fig. 4, elements 105-107, 110-121).

Furthermore, Naper discloses repeating the process of rate negotiation until

the optimum data rate is determined (Fig. 4, elements 105-107, 110-121 &

Column 10, lines 1-60 & Column 12, lines 5-20). Therefore, it would have

been obvious to one of ordinary skill in the art at the time of the invention that

Naper teaches a method (protocol) for negotiating a communications data

rate between modem pairs and implementing a timer so as to determine, the

data rate between the source and destination modems, and this method

(protocol) can be implemented in the modem pools as described in the AAPA

so as to determine the optimum data rate between modems and reduce the

need for repeated retransmissions of data and provide a reliable data transfer

between the modems. Furthermore, setting the data for each modem pairs,

in parallel, is a matter of design choice and the protocol as described in Naper

can be implemented such that it is implemented simultaneously in each

modem pairs in the two modem pools, thus satisfying the limitations of the

claim.

Regarding to Claims 2-4 & 22-24, the Applicant Admitted Prior Art (AAPA)

in view of Naper discloses a method of setting data rates in DSL modem

elements arranged in modem pools to achieve high data rates in a DSL

system as described above. The AAPA also discloses different methods for

setting different data rates for each modem in the modem pool and using

different mechanisms to set the data rates such as setting modem data rates

individually according to a predefined data rate array (Specification, Page 2,

lines 5-15). Therefore, it would have been obvious to one of ordinary skill in

the art at the time of the invention that the AAPA teaches setting a data rate

based on a predefined data rate array, and the data rates in the array can be

used to set the initial data rates and the protocol as described in Naper can

be used to set the optimum data rates, thus satisfying the limitations of the

claim. Furthermore, establishing the array (vector) at one of the modem

pools and communicating the array (vector) to the other modem pools is a

matter of design choice and there is not criticality in this step for the

initialization of the modems in the modem pools. Furthermore, it is again a

matter of design choice for setting the initial data rate in the data array from

the data rates previously used by the modem pairs, there is no criticality in

how the initial data rate is selected since the data rate set is determined by

the method (protocol) as described in Naper, and setting the initial rate from

the previously used data rate minimizes the negotiation time for the data

transfer.

Regarding to Claims 7-9 & 27-29, the Applicant Admitted Prior Art (AAPA)

in view of Naper discloses a method of setting data rates in DSL modem

elements arranged in modem pools to achieve high data rates in a DSL

system as described above. Naper further discloses performing the step of

setting the data rate by incrementing an iteration counter and/or until an

elapsed time limit is reached (Column 10, lines 1-60 & Column 12, lines 5-20

& Fig. 4, elements 105-107, 110-121). Therefore, it would have been obvious

to one of ordinary skill in the art at the time of the invention that Naper

teaches a method (protocol) for data rate negotiation for a specified iteration

and time and this can be implemented in the modem pool system as described in the AAPA.

9. Claims 5, 6, 25 & 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant Admitted Prior Art (AAPA) in view of Naper (5,491,565) in further view of Sweitzer et al. (6,570,915).

Regarding to Claims 5, 6, 25 & 26, the Applicant Admitted Prior Art (AAPA) in view of Naper discloses a method of setting data rates, based on channel quality conditions, between DSL modem pairs arranged in modem pools to achieve high data rates in a DSL system as described above. However, the AAPA in view of Naper does not disclose measuring wire attenuation and (signal-to-noise ratio) SNR between the modem pairs and interpolating the corresponding data rate from the measured parameters.

Sweitzer discloses a method for synchronizing a data rate in a DSL communication system comprising determining line quality measurements performed in the receiving modem wherein the line quality measurements maybe based on bit-error-rate, attenuation level, and /or signal-to-noise ratio and based on the measurements determining the corresponding data rate (Abstract, lines 1-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Sweitzer teaches measuring the wire attenuation and (signal-to-noise ratio) SNR between the modem pairs and interpolating the corresponding data rate from the measured parameters and this can be implemented in the method (protocol) as described in the AAPA in view of Naper so as to reduce the DSL

communication systems initial training time for achieving optimal data rate,

thus satisfying the limitations of the claims.

Conclusion

10.   The prior art made of record and not relied upon is considered pertinent

to applicant's disclosure, it is recommended to the applicant to amend all

the claims so as to be patentable over the cited prior art of record. A

detailed list of pertinent references is included with this Office Action (See

Attached "Notice of References Cited" (PTO-892)).

11.   Any inquiry concerning this communication or earlier communications

from the examiner should be directed to Sudhanshu C. Pathak whose

telephone number is (571)-272-3038. The examiner can normally be

reached on M-F: 9am-6pm.

- If attempts to reach the examiner by telephone are unsuccessful,

  the examiner's supervisor, Stephen Chin can be reached on (571)-

  272-3056

- The fax phone number for the organization where this application or

  proceeding is assigned is 703-872-9306.

- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sudhanshu C. Pathak

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